

In re: Sumakeris et al.
Serial No.: 10/017,492
Filed: October 30, 2001
Page 2

This listing of claims will replace all prior versions and listings of the claims in the application:

Listing of the Claims:

1. (Currently amended) A heating device for controllably heating an article, the heating device defining a processing chamber to hold the article and comprising:
 - a) a housing including:
 - a susceptor portion surrounding at least a portion of the processing chamber; and
 - a conductor portion interposed between the susceptor portion and the processing chamber; and
 - b) an EMF generator configured to generate an electromagnetic field to induce eddy currents within the susceptor portion such that substantially none of the electromagnetic field is applied to the conductor portion and substantially no eddy currents are induced in the conductor portion;
 - c) wherein the conductor portion is operative to conduct heat from the susceptor portion to the processing chamber; and
 - d) wherein eddy currents induced by the EMF generator are present in the susceptor portion and substantially no eddy currents are present in the conductor portion.
2. (Canceled).
3. (Original): The heating device of Claim 1 wherein the susceptor portion includes a susceptor core of a first material and a susceptor coating of a second material.
4. (Original): The heating device of Claim 3 wherein the first material is graphite.
5. (Original): The heating device of Claim 3 wherein the second material is SiC.

In re: Sumakeris et al.
Serial No.: 10/017,492
Filed: October 30, 2001
Page 3

6. (Original): The heating device of Claim 3 wherein the second material is selected from the group consisting of refractory metal carbides.

7. (Original): The heating device of Claim 6 wherein the second material is TaC.

8. (Original): The heating device of Claim 1 wherein substantially all surfaces of the conductor portion in fluid communication with the processing chamber are formed of SiC.

9. (Original): The heating device of Claim 8 wherein the conductor portion includes a conductor core of a first material and a conductor coating of a second material different from the first material.

10. (Original): The heating device of Claim 9 wherein the first material is graphite.

11. (Original): The heating device of Claim 9 wherein the second material is a refractory metal carbide.

12. (Original): The heating device of Claim 9 wherein the second material is SiC.

13. (Previously presented): The heating device of Claim 1 wherein:

- a) the susceptor portion includes a first susceptor portion and a second susceptor portion disposed on opposed sides of the processing chamber; and
- b) the conductor portion includes a first liner disposed between the first susceptor portion and the processing chamber and a second liner disposed between the second susceptor portion and the processing chamber.

14. (Original): The heating device of Claim 13 wherein the second susceptor portion includes a platter region, the heating device further including:

- a platter adapted to support the article disposed in the processing chamber and overlying the platter region; and

In re: Sumakeris et al.
Serial No.: 10/017,492
Filed: October 30, 2001
Page 4

an opening defined in the second liner and overlying the platter region and interposed between the platter region and the platter.

15. (Previously presented): A heating device for controllably heating an article, the heating device defining a processing chamber to hold the article and comprising:

- a) a housing including:
 - a susceptor portion surrounding at least a portion of the processing chamber; and
 - a conductor portion interposed between the susceptor portion and the processing chamber; and
- b) an EMF generator configured to induce eddy currents within the susceptor portion such that substantially no eddy currents are induced in the conductor portion;
- c) wherein the conductor portion is operative to conduct heat from the susceptor portion to the processing chamber;
- d) wherein eddy currents induced by the EMF generator are present in the susceptor portion and substantially no eddy currents are present in the conductor portion;
- e) wherein:
 - the susceptor portion includes a first susceptor portion and a second susceptor portion disposed on opposed sides of the processing chamber; and
 - the conductor portion includes a first liner disposed between the first susceptor portion and the processing chamber and a second liner disposed between the second susceptor portion and the processing chamber;
- f) wherein the second susceptor portion includes a platter region, the heating device further including:
 - a platter adapted to support the article disposed in the processing chamber and overlying the platter region; and
 - an opening defined in the second liner and overlying the platter region and interposed between the platter region and the platter; and

In re: Sumakeris et al.
Serial No.: 10/017,492
Filed: October 30, 2001
Page 5

g) wherein the second liner includes first and second liner members disposed on opposed sides of the platter and each defining a portion of the opening, wherein the first and second liner members are separable.

16. (Original): The heating device of Claim 15 wherein at least one of the first and second liner members is separable from the second susceptor portion.

17. (Original): The heating device of Claim 1 including a platter adapted to support the article disposed in the processing chamber.

18. (Previously presented): The heating device of Claim 17 wherein the EMF generator is configured to generate the electromagnetic field such that:
there are no substantial eddy currents induced in the platter by the
electromagnetic field; and
the platter conducts heat from the susceptor portion to the processing chamber.

19. (Original): The heating device of Claim 17 including an opening defined in the conductor portion, wherein the opening is interposed between the susceptor portion and the platter.

20. (Original): The heating device of Claim 17 wherein the platter is adapted to rotate relative to the susceptor portion.

21. (Original): The heating device of Claim 1 including an inlet opening and an outlet opening in fluid communication with the processing chamber.

22. (Original): The heating device of Claim 21 including a supply of processing gas reactive to heat to deposit SiC.

In re: Sumakeris et al.
Serial No.: 10/017,492
Filed: October 30, 2001
Page 6

23. (Original): The heating device of Claim 1 wherein the EMF generator is operable to heat the susceptor portion to a temperature of at least 1400°C.

24. (Previously presented): The heating device of Claim 1 wherein the conductor portion is separately formed from the susceptor portion and is removable from the susceptor portion without requiring disassembly of the susceptor portion.

25. (Canceled).

26. (Canceled).

27. (Previously presented): A housing assembly for an induction heating device, the housing assembly defining a processing chamber and comprising:

a) a susceptor surrounding at least a portion of the processing chamber;
and

b) a thermally conductive liner interposed between the susceptor and the processing chamber, wherein the liner is separately formed from the susceptor;

c) wherein the susceptor includes a platter region, the housing assembly further including:

a platter adapted to support the article disposed in the processing chamber and overlying the platter region; and

an opening defined in the liner and interposed between the platter region and the platter; and

d) wherein the liner includes first and second liner members disposed on opposed sides of the platter and each defining a portion of the opening, wherein the first and second liner members are separable.

28. (Original): The housing assembly of Claim 27 wherein at least one of the first and second liner members is separable from the susceptor.

In re: Sumakeris et al.
Serial No.: 10/017,492
Filed: October 30, 2001
Page 7

29. (Previously presented): The heating device of Claim 24 including means for positively and removably locating the conductor portion relative to the susceptor portion.

30. (Previously presented): The heating device of Claim 1 wherein the conductor portion is separately formed from the susceptor portion and varies in thickness along at least a portion of its length.

Claims 31-42 (canceled).

Claims 43-45 (canceled).

46. (Previously presented): A heating device for controllably heating an article, the heating device comprising:

a) a housing assembly defining a processing chamber to hold the article and comprising:

a susceptor surrounding at least a portion of the processing chamber; and
a thermally conductive liner interposed between the susceptor and the processing chamber, wherein the liner is separately formed from the susceptor;
wherein the susceptor includes a platter region, the housing assembly further including:

a platter adapted to support the article disposed in the processing chamber and overlying the platter region; and

an opening defined in the liner and interposed between the platter region and the platter; and

wherein the liner includes first and second liner members disposed on opposed sides of the platter and each defining a portion of the opening, wherein the first and second liner members are separable;

b) an EMF generator configured to induce eddy currents within the susceptor such that substantially no eddy currents are induced in the liner;

In re: Sumakeris et al.
Serial No.: 10/017,492
Filed: October 30, 2001
Page 8

c) wherein the liner is operative to conduct heat from the susceptor to the processing chamber; and

d) wherein eddy currents induced by the EMF generator are present in the susceptor and substantially no eddy currents are present in the liner.

47. (Previously presented): The heating device of Claim 46 wherein at least one of the first and second liner members is separable from the susceptor.